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ABSTRACT

A seminar was convened by the World Health Organization (WHO) for the purpose of discussing the organization, management, and improvement of teacher training centers for the health professions. The following recommendations were made: (1) WHO should facilitate the exchange of information on development programs and medical teaching practice by means of seminars, conferences and workshops, publications, fellowships, and exchange of staff: (2) Evaluation of innovations in medical education with the aim of identifying factors likely to contribute to success or failure and transferability to other institutions should be promoted: (3) WHO should coordinate a study of methods and approaches to staff development programs for medical teachers: (4) WHO should promote medical teaching among national bodies, institutions, medical schools, and individual teachers: and (5) All members of health care teams who contribute to medical teaching should be recognized and supported. Papers from Denmark, the United Kingdom, West Germany, Switzerland, France, and the Union of Soviet Socialist Republics on planning and implementing staff development programs are included. (JD)

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# PLANNING AND IMPLEMENTATION OF TEACHER TRAINING PROGRAMMES

Report on a Seminar

London
23–25 May 1979

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
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## 1. Introduction

A Seminar on Planning and Implementation of Teacher Training Programmes was convened in London from 23 to 25 May 1979 by the WHO Regional Office for Europe in collaboration with the Government of the United Kingdom. Held at the British Life Assurance Trust (BLAT) Centre for Health and Medical Education, it was attended by 19 staff members of teacher training centres and representatives of national health services and education authorities from 13 countries, together with 9 temporary advisers and 3 WHO staff members.

The purpose of the Seminar was to discuss the organization and management of teacher training centres and to exchange information on various aspects of the planning and implementation of teacher training programmes. The Seminar was arranged as part of the medium-term programme in health manpower development of the WHO Regional Office for Europe. It was hoped that participants would examine special problems and current trends in the training of teachers for the health professions, with special reference to the health services and health manpower development programme and that, as a result of the Seminar, it would be possible to formulate recommendations relating to the improvement of teacher training in the WHO European Region.

A seminar in San Remo, Italy, in 1972 had previously considered the training of medical teachers in pedagogy, and a working group which met in Warsaw in 1974 had examined medical teacher training.

In his opening address, Dr A. Wojtczak welcomed the participants on behalf of the WHO Regional Director for Europe, Dr Leo A. Kaprio. He stressed the fact that the Thirty-first World Health Assembly in May 1978 had endorsed WHO's ongoing programme, which was geared to the needs of countries in strengthening their teacher training programmes. The approach adopted by the European Region to the development of teacher training programmes differed from that in other regions. Whereas in other areas regional teacher training centres had been organized with a view to preparing personnel to organize national activities, in Europe stress had been placed on the development of national teacher training centres. This reflected the existence of a great number of medical schools, the great diversity in the organization of health services and medical education systems, as well as the lack of a common language in the countries of the Region.

In this situation, the role of WHO had been to underline the importance of national centres and to stimulate their development. With this aim, WHO had facilitated the exchange of information and experience between the staff responsible for their respective national centres. Through working groups, seminars and courses, the Regional Office for Europe had tried to stimulate interest at regional and national levels in the training of teachers. There had been two major activities in this field, namely the Seminar on the Training of Medical Teachers in Pedagogy (San Remo, 1972) and the Working Group on Medical Teacher Training (Warsaw, 1974). Five years later, this meeting in London had brought together leading specialists with experience in teacher training programmes and representatives of national health services and education authorities. The purpose of the meeting was to summarize the existing experience in the field; to review the successes and failures; to review obstacles to the implementation of ideas that have been demonstrated to be of value; to examine the successful innovations made in different countries and to see to what extent they were transferable.

Teachers were still using methods that ignored the fact that students learned how to solve a problem not by being told how to solve it, but by experimenting themselves to find a solution. Outmoded methods of evaluation, still in use, provided some information on the student's capacity for memorizing, but they did not assess the individual's ability to cope with the real problems he or she would be encountering after graduation. The situation was complicated further by a lack of coordination between the different departments responsible for the planning and implementation of learning programmes.

Teachers needed to understand the close relationship between the development of health services and health manpower, and between the education of health workers and the health needs and demands of the population. Health manpower had no meaning in isolation and was solely an instrument for effecting health care. One of the ways of tackling the problem was by raising the level of competence of the teacher and by using appropriate teacher training programmes.

Welcoming the participants on behalf of the Department of Health and Social Security, Dr M.E. Abrams emphasized the importance of doctors being trained in the art of passing on their knowledge. Only by improvements in teaching could the already high standard of medicine be improved. Dr J.C. Cameron then addressed the participants on behalf of the British Medical Association.

Dr W.D. Clarke was elected Chairman and Professor R.M. Harden Rapporteur. A list of participants is given in Annex X.

2. Framework for improvements in medical teaching

Dr L.A. Judin, Regional Officer for Educational Development and Support, outlined the experience gained by the WHO Regional Office for Europe in the field of teacher training (see Annex I). The following priority areas were identified:

(a) teacher training in educational planning: its relevance to health needs;

(b) the selection process related to the spectrum of health care delivery;

(c) strengthening of the training of public health specialists in modern management techniques;

(d) teacher training in quality control;

(e) teacher training in the management of schools for health professions.

In 1976, the Regional Office had carried out a survey of teacher training facilities in selected European countries; as a result, 55 institutions, departments or groups concerned with training and/or research in medical education were identified. A second edition of this inventory lists such institutions in 17 European countries.

It had become apparent that the educational problem was not merely a matter of teaching methods but of educational planning in the broadest sense, of educational administration, curriculum design and development, and educational evaluation. Social needs and demands had to be represented in any solution to the problem. The innovation of training medical teachers in educational methods had met with considerable resistance, which was now being overcome by some countries in the European Region. Governments or ministries had begun to relate good medical school policy, as well as educational methods and measurement, to good health services. Making teachers more aware of and more competent in educational management, teaching methods and evaluation should improve the situation.

Dr W.D. Clarke, in his paper on the planning and implementation of teacher training programmes (see Annex II), stressed that until the problems associated with the implementation of innovations had been solved, many future innovations were doomed to failure. He suggested that the most rewarding way of promoting an improvement in medical teaching was to postpone for a time the development of yet more new approaches to teaching and to concentrate on ways of ensuring that existing knowledge was disseminated more widely.

Professor H. van den Bussche analysed the reasons why only a minority of medical teachers tried to improve teaching and why the majority stuck to traditional aims and methods of medical education (see Annex III). Both constraints and incentives needed to be recognized when considering the attitudes of medical teachers to educational innovations. The constraints included problems with teacher recruitment, the insufficient time allocated to teaching, the "self-image" of teachers and their prejudices. The incentives included pressures from students, results of evaluation, and information about practices in other faculties. The organization of a medical school might encourage or discourage innovation and, in that way, act either as a constraint or as an incentive. More attention should, therefore, be paid to that aspect of a medical school and to whether an appropriate climate for innovation existed.

Dr H.R. Noack, at medical school level, and Professor J. Tigyi, at the national level, described the problems involved in facilitating innovations and the various approaches that could be adopted. Dr Noack said that the implementation of innovations in medical schools could be successful only to the extent that there was a sufficient correspondence of values, decisions and actions at four different levels: the national level, the institutional level, the level of the individual teacher and the level of the individual student (see Annex IV). He proposed four principles for the implementation of innovations:

(a) the aims of the innovation must be made explicit and shared widely within the institution;

(b) an adequate organizational structure must be established to allow the innovation to be implemented;

(c) new positions and roles must be established or traditional ones changed where this is necessary;

(d) the values and attitudes associated with the aims and with the process of change must be shared by the majority of the departments and people involved.

Professor I.A. Sechenikov described a method of teaching adopted at the First Moscow Medical Institute as an example of how new approaches to teaching methods could be implemented in practice (see Annex V). The method used required teachers to change from a didactic role to one in which they acted as student guides.

Dr J.F. d'Ivernois drew a distinction between minor innovations, such as the introduction of multiple-choice questions, and major innovations, which are related to the aims, content and design of the curriculum (see Annex VI). Strategies where major innovations had been implemented successfully included:

(a) consideration of the needs of the population;

(b) investment of time in the design of the curriculum;

(c) involvement of staff and students in planning;

(d) cooperation between teachers;

(e) recognition of the importance of evaluation;

(f) education of the teachers.

Professor H.E. Renschler presented a list of criteria relating to the evaluation of candidates for higher education teaching posts in the Federal Republic of Germany (see Annex VII).

A staff development programme for teachers of medicine and health care professionals, with particular reference to experience gained in the Centre for Medical Education, University of Dundee, was described in a paper by Professor R.M. Harden and Dr W.R. Dunn (see Annex VII).

## 3. Planning improvements in teaching

In discussion, the participants identified four issues:

(a) what type of teacher should be produced;

(b) how should this be achieved, e.g. through recruitment of appropriate staff and through staff development programmes;

(c) within what organizational framework the teacher should operate;

(d) what evaluation of the teaching should be undertaken.

### 3.1 What type of teacher should be produced?

The first consideration in the planning and implementation of a teacher training programme is the type of teacher which the programme aims to produce. What accomplishments should a medical teacher have? Should all teachers have the same teaching skills and training? Both of these questions require an answer.

#### 3.1.1 The attributes of the ideal teacher

A number of attributes can be identified which should be found in a teacher if he is to do his job properly.

(a) The practice of medicine must be related to the society of which it is part. Thus, the teacher must be aware of the needs of the community and of the health care delivery systems within the country in which he is practising. The milieu (i.e. the physical and social environment) in which the education programmes take place differs from country to country. A consequence is that teaching must be related by the teacher to the needs of the country.

(b) The teacher should be a practitioner in the subject he teaches and should be respected for his professional competence in the practice of medicine. He should be well versed in his subject, and through continuing education he should keep himself up to date. In most instances, the teacher will be medically qualified and should serve as a role model for the student.

(c) The teacher should have expertise in methods of teaching. He should be familiar with current educational techniques and be able to select and apply those relevant to his own situation. He should, for example, be aware of the advantages of a problem-solving approach, of the case for and against integrated teaching, and of the changing role of the teacher (i.e. the trend away from a purely didactic role to that of manager and facilitator of the learning process - a more rewarding and more demanding role). He should appreciate the importance of inculcating in his students a desire for life-long learning and equip them for this process. He should be familiar with techniques designed to assess a student's clinical competence, with the role of in-course and end-of-course assessment and with the need for self-assessment.

(d) In addition to his accomplishments in methods of teaching, he should have administrative skills and experience in bringing about educational change.

(e) Finally, he should be motivated to teach, to evaluate his teaching and to innovate when appropriate.

3.1.2 Different commitments and responsibilities

Teacher training programmes must take into account the fact that teachers vary widely in type according to their commitments and the responsibilities they exercise. These types include:

(a) the teacher who develops medical education as a specialty, who gives priority to the study and development of the subject and who may be responsible for providing information or organizing courses on the subject for other teachers;

(b) the full-time teacher who has teaching as a major commitment;

(c) the part-time teacher who may make an important teaching contribution but who has other major commitments in the delivery of health care and may be working outside a teaching centre;

(d) paramedical and other health care professionals, such as nurses, clinical psychologists and social scientists, who have a role in particular aspects of the students' training.

While many problems in teaching will be common to all the above groups, each group will have different needs. Thus, the staff who are to become a major educational resource within their faculty, with a responsibility for innovating in medical education, require a different training from doctors whose teaching commitment is very much a part-time one and who may be situated remote from a university centre.

3.1.3 Different spheres of activity

While medical education should be a continuum from undergraduate through postgraduate to continuing medical education, each phase requires somewhat different educational strategies. In the undergraduate course, the student is fully committed to his studies, has no service commitments, has little experience of medical practice and for much of his course is based, usually as one of a large group, in a teaching centre. In contrast, in postgraduate and continuing education, the student has to relate his activities to his work, he may be situated at a distance from a teaching centre and his needs may vary widely from those of his colleagues. Thus, while many of the competences required in teaching are common to all teachers, different emphases may be needed, depending on the phase with which the teacher is concerned. Some differences also exist in the teaching approach required in different aspects of the same phase. Thus, the teaching skills required to teach anatomy in the medical school may differ somewhat from those required by the teacher whose responsibility is to teach students in the community. This itself may be an obstacle to change in the medical curriculum.

3.2 How should the teacher be trained?

After a model for the acceptable teacher has been agreed, teachers must be recruited or trained who correspond to that model.

3.2.1 Recruitment

An important aspect of teacher training is the recruitment of suitable individuals to be trained. No teacher training programme will succeed where the teacher is not interested in teaching, is reluctant to spend time considering his teaching and regards research as his major commitment.

Methods or criteria whereby teachers are recruited vary from country to country. While some countries have formal requirements in terms of experience and training, both in the subject specialty and in teaching methods, others do not. Indeed, all too often teachers are appointed on the basis of their scientific qualifications and research experience, no attention being paid to their teaching competence or experience. In some countries, teachers are selected on the basis of their previous record as students. Teaching ability should always be taken into account in the selection of medical teachers and in their promotion.

The question of whether a staff member should be appointed to a permanent tenured post as a medical teacher, in which his job is secure, or whether the appointment should be subject to renewal at regular intervals, subject to satisfactory performance in the job, should be considered.

While there are difficulties in measuring the staff member's teaching ability, it is possible to obtain some information as to his competence and experience in teaching. Information can be obtained from:

(a) the record of his past personal teaching commitments;

(b) his participation in curriculum committees and curricular innovation;

(c) the learning resource material prepared by him;

(d) his participation and membership in organizations concerned with teaching methods and medical education;

(e) his training in medical education and teaching methods;

(f) students' opinion of his performance as a teacher.

3.2.2 Provision of incentives for the teacher

There is a need to encourage physicians to take up teaching appointments and, once appointed as teachers, to take an interest in their teaching responsibilities and in their own further training in this field. This can be achieved by:

(a) suitable recognition by the government, the teacher's institution and his colleagues in terms of academic status and privileges;

(b) promotion based on teaching ability;

(c) adequate financial remuneration;

(d) arranging the teacher's workload to allow adequate time for teaching commitments, including time spent on the preparation of learning resource material and assessment instruments;

(e) an emphasis during the undergraduate curriculum on the importance of skills in teaching and communication to the work of the physician;

(f) the provision of facilities (e.g. fellowships, attendance at conferences and courses) for the teacher to keep up to date with his medical and teaching interests.

3.2.3 Staff development programmes

There are a number of different approaches to the organization of staff development programmes.

The formal course

Many universities now arrange introductory courses in teaching methods, and new members of staff are frequently required to attend such courses. Within a school, workshops may be organized at a faculty or departmental level. Several centres in the WHO European Region offer more advanced courses covering topics such as preparation of learning resource material, evaluation, curriculum development, and management and administration in medical education; these are open to all schools in the Region.

Courses should be task-oriented and should tackle the real problems of the medical teacher rather than concentrate on theoretical issues. The programmes should be related to the local requirements of the teacher.

Medical teachers more readily accept suggestions for change from colleagues than they do from nonmedical educationists. While both doctors and educationists have a role to play in the planning and organization of teacher training courses, wherever possible those responsible should themselves be directly concerned and be seen to be involved in the training of medical students. Thus, physicians should play a major role in the training programmes. Other staff involved with training programmes should have the ability to relate to and work with medical teachers.

While formal courses have an important part to play in staff development programmes, they need to be augmented by other activities if their full value is to be achieved. Participants attending courses should, therefore, be followed up and individual assistance provided as and when required.

Distance learning

Distance learning techniques could play an important part in staff development programmes. In distance learning, the student is guided by an instructor at a distance from him. Use is made of learning resource material in print or audiovisual form. The Open University in the United Kingdom provides an interesting example of what can be done using this approach in a number of subject areas.

Apprenticeship in medical education

Useful training experience is afforded where the teacher works alongside staff competent and active in medical education and experiences successful innovations at first hand.

Self-assessment and audit

Staff development programmes should not be seen as attendance at a single course or completion of a period of attachment. Continuing training is essential and, as part of this, teachers should be encouraged to assess their own performance.

Involvement in other activities

Involvement in other activities may help equip the medical teacher to do his job of training medical students better. He may benefit from activities such as health policy planning and administration and training of other health professionals.

In many instances, participation in a training programme is compulsory and may be a condition of a new lecturer's appointment. It is important, however, to encourage all medical teachers to avail themselves of the training opportunities provided. They can be encouraged to do so in a number of ways:

(a) the teacher attending a course should not be penalized financially; the payment of course fees, of any travel and subsistence costs incurred, and of locums where necessary, should be the responsibility of the institution;

(b) the teacher should be freed from other duties, either clinical or research, to allow him to participate;

(c) the teacher should be given credit, e.g. in terms of future promotion, if he completes the training programme satisfactorily;

(d) the objectives of the programme and the ways in which the teacher would benefit from participating should be explained to him.

### 3.2.4 Sharing of experience

As already noted, over 71 institutions, departments or groups in 17 different countries of the WHO European Region have been listed as offering expertise in medical education (see Annex I). This considerable fund of experience in introducing and implementing changes in medical education should be tapped. Wherever possible, teachers should learn from the experiences gained by other colleagues in their own field. Thus, by surveying what has already been done by other medical teachers, they can more readily learn the lessons from previous successes and failures.

## 3.3 Within what organizational framework should the teacher operate?

While the availability of suitably trained staff is of importance, little will be accomplished unless they are working in a setting within which they can function effectively. The implementation of innovations is often frustrated by a lack of attention to the context in which

they are taking place. Attempts to train more staff or better staff will be doomed to failure unless this context is an appropriate one and the climate created is favourable to educational reform. The history of innovations in medical teaching that have attempted to bring about improvements shows that many of them failed because insufficient attention was paid to the problem of ensuring that they were implemented or disseminated.

In medical schools, priority must be given, and be seen to be given, to teaching. This will be reflected in the following.

(a) Criteria for recruitment and the appointment of staff which emphasize the teacher's ability and experience (as discussed above).

(b) Arrangements whereby the teacher can have sufficient time allocated for teaching and for the preparation of learning resource material. The allocation of time is important, as normally the teacher has to distribute his time between teaching, research work, administration and clinical or other service commitments.

(c) The establishment of facilities within the medical school to support the teacher in his work. This will include secretarial, administrative, technical and educational support; educational creativity cannot flourish when starved of resources.

(d) The establishment of new positions and roles, or changes in traditional ones, especially in the field of educational and health services research, in decision making and evaluation, as well as in staff development and teacher training, e.g. the appointment of appropriate coordinators in the case of integrated curricula.

(e) The establishment of an adequate organizational structure for the dissemination of information, so that staff are kept informed of any changes in the curricula and of new teaching or assessment methods introduced.

(f) Making explicit the aims of educational reforms or other innovations. These should be shared widely, in particular by those who are responsible for the major service, research and teaching functions of the institution.

(g) The provision of adequate financial support for teaching. Lack of money may be a constraint and cost may be the key factor when educational decisions are made at faculty or governmental levels. Many innovations do not result in a saving in terms of money but are aimed at improving the quality of teaching. However, whether an innovation results in additional expenditure or a saving in money may dictate if it can or cannot be implemented.

(h) Discussion between universities and the government in an attempt to resolve situations in which the short-term goals of the government may at times conflict with the longer-term goals of the universities.

(i) Arrangements whereby teaching is not restricted to the university or hospital setting but can occur in the community.

(j) Recognition of education as a continuing process from undergraduate, through postgraduate, to continuing education.

(k) Consideration of the students' views on their education.

3.4 What evaluation should be undertaken?

Staff development programmes should be evaluated so that different approaches to teacher training can be compared. While the importance of evaluating teacher training programmes should be stressed, the details of how this should be done were not covered as part of this Seminar and should be the subject of further enquiry. Techniques should be explored which would allow one to assess the success or failure of innovations and to identify those factors most likely to lead to change in medical education.

4. Summary

The framework for improvements in medical teaching was considered, including those factors that promoted and those that discouraged the implementation of innovations in medical education. When improvements in teaching are considered, four questions should be asked. Firstly, what type of teacher are we trying to produce? The desirable attributes in a teacher include awareness of the needs of the community, professional competence in his subject, expertise and motivation in

teaching, and administrative skills. It was recognized that teachers may have different commitments to teaching. The importance of recruiting suitable teachers for training and the need to provide adequate incentives were emphasized. Secondly, how should the teacher be trained? Staff development programmes might include formal courses, distance learning, a period of attachment and self-assessment and audit. Considerable experience and expertise was available within the WHO European Region, and this should be shared between the different countries and universities. Thirdly, within what organizational framework should the teacher operate? An appropriate priority should be given within the medical schools to medical education, and this should be manifest in the milieu of the medical school. Fourthly, what evaluation of staff development programmes should be undertaken?

5. Recommendations

(1) WHO should facilitate the exchange of information on staff development programmes and medical teaching practice by a variety of methods, including seminars, conferences and workshops, publications, sponsored fellowships, collaborative projects and exchange of staff. Communication between the staff of different centres should be encouraged.

(2) WHO should promote the evaluation of appropriate innovations in medical education with the aim of identifying factors likely to contribute to their success or failure and to their transferability to other institutions. The mechanisms for bringing about a change in medical education could be a topic for a workshop.

(3) WHO should coordinate a study of methods and approaches to staff development programmes for medical teachers, including courses and workshops, distance learning and the use of independent learning materials.

(4) WHO should promote a climate of opinion among national bodies, institutions, medical schools and individual teachers which would favour giving the appropriate priority to medical teaching. Means for this purpose would include:

- the establishment of criteria of teaching ability in staff to be appointed;
- the provision of opportunities for staff development and of appropriate incentives and rewards for medical teachers active in innovating in medical education;
- recognition of the need to allow for teaching commitments, including the preparation of learning resource materials, and for the continuing education of the teacher;
- the allocation of appropriate resources for teaching purposes;
- the provision of grants to support research in medical education.

(5) The different categories of medical teacher, such as staff devoting a major part of their time to teaching, staff whose primary commitment is in the delivery of health care but who made a significant contribution to teaching, and other members of the health care team who contribute to medical teaching, should be recognized and supported as appropriate.

Annex I

# EXPERIENCE OF THE REGIONAL OFFICE FOR EUROPE IN TEACHER TRAINING

by
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The World Health Assembly decided in resolution WHA30.43 that the main social target of governments and WHO should be the attainment by all citizens of the world by the year 2000 of a level of health that would permit them to lead a socially and economically productive life. This goal is popularly known as "Health for all by the year 2000".

In view of the crucial role of human resources, most governments will have to take vigorous measures to ensure the availability of an adequate number of the appropriate types of health manpower required to devise and implement the plan of action.

The long-term programme in education and training of the WHO Regional Office for Europe was approved by the Regional Committee at its twenty-second session in 1972 (EUR/RC22/R5). In 1976, this programme was changed to a medium-term programme in health manpower development, which aims at strengthening the collaboration of all interested Member States with the Regional Office and among themselves in promoting the development of all categories of health worker.

To achieve this aim, the Regional Office undertakes long-term activities of common interest to Member States and meets requests from them with regard to ad hoc health manpower aspects related to their own general development programmes.

One of these activities was a subprogramme in teacher training, which was supported by the health manpower development (HMD) advisory committees in 1976 and 1978. The priority areas identified were:

(a) teacher training in educational planning; its relevance to health needs;

(b) the selection process related to the spectrum of health care delivery;

(c) strengthening of the training of public health specialists in modern management techniques;

(d) teacher training in quality control;

(e) teacher training in the management of schools for health professions.

During the period 1970-74, WHO headquarters organized an interregional teacher training centre at the Center for Educational Development in the University of Illinois College of Medicine, Chicago, USA. By the end of 1977, eight regional centres were in operation, namely Kampala and Yaoundé (African Region); Mexico City and Rio de Janeiro, Brazil (Region of the Americas); Bangkok and Peradenija, Sri Lanka (South-East Asia Region); Shiraz, Iran (Eastern Mediterranean Region); and Sydney, Australia (Western Pacific Region).

On the other hand, no regional teacher training centres were established in Europe for several reasons, including the following:

(a) most of the European countries have a very well developed educational and health systems infrastructure;

(b) professional ethics are to a considerable extent governed by tradition, and the existence of different health systems and philosophies means that different methods are applied;

(c) there are at least 11 major language groups.

However, several working groups convened by WHO have discussed the development of a system of teacher training specifically geared to the needs of the European Region. At the WHO Seminar on

Training of Medical Teachers in Pedagogy, convened in 1972 in San Remo, Italy, the participants outlined the elements and organization of courses in educational methods for medical teachers and agreed to promote the organization of such courses in their local settings.

In 1974, a Working Group on Medical Teacher Training, held in Warsaw, stressed the need for more and better information on existing training centres and on individual expertise in Europe. In accordance with one of the recommendations of this meeting, the Regional Office carried out a survey of teacher training facilities in selected European countries in 1976, identifying 55 institutions, departments or groups concerned with training and/or research in medical education. A second edition of this inventory already includes 71 such institutions identified in 17 European countries.

Examples of medical educational centres dealing directly with teacher training are the following:

(a) the British Life Assurance Trust (BLAT) Centre for Health and Medical Education, London;

(b) the Centre for Medical Education, Dundee, Scotland;

(c) the Central Institute for Advanced Medical Studies, Moscow, and eight medical institutions (universities) in the USSR: Moscow (three), Leningrad (two), Kiev, Novosibirsk and Kuibyshev;

(d) the Institute for Postbasic Education of Middle-level Health Personnel and the Institute for Postgraduate Education in Medicine and Pharmacy, Prague, Czechoslovakia;

(e) the Warsaw Medical School's Department for Education and Health Information Centre; National Centres for Teacher Training for Intermediate-level Medical Schools at Warsaw and Poznan Universities; the Institute for New Teaching Methods, and Poznan Medical School, Poland;

(f) the Institute for Research in Medical Education and Evaluation, Berne, Switzerland.

It is worthwhile to single out some of the aspects included in the teacher training programme, such as:

- communication between teacher and student;
- systems approach to teaching;
- educational objectives and standards to be achieved;
- different methods of teaching (lessons, lectures, seminars, etc.);
- planning, preparation and delivery of a lesson;
- construction of questions and method of questioning;
- planning, preparation and delivery of a lecture;
- planning and conduct of a seminar or workshop;
- various methods of evaluating student learning (advantages and disadvantages);
- advantages and disadvantages of the different audiovisual aids.

It is clear that the educational problem is not merely a matter of teaching methods but of educational planning in the broadest sense, of educational administration, curriculum design and development and educational evaluation, and that social needs and demands must be represented. However, the innovation of training medical teachers in educational methods has met with considerable resistance, which is now being overcome by some countries in the European Region. Governments or ministries have begun to relate good medical school policy, as well as educational methods and measurement, to good health services. Making teachers more aware of and more competent in educational management, teaching methods and evaluation should improve the situation.

It is important to define the organizational and managerial problems of teacher training centres on the basis of the experiences of existing centres in European countries and to exchange information on various aspects of the planning and implementation of teacher training programmes. The development of a systematic approach to educational planning and technology in teacher training is measured by the improved performance of its teachers and the appropriateness of training programmes.

The Regional Office for Europe hopes to develop a teacher training programme that is relevant to present and future needs.

Annex II

# PLANNING AND IMPLEMENTATION OF TEACHER TRAINING PROGRAMMES

by
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## 1. Focus of the Semina.

The aim of the Seminar is to identify ways in which the standards of medical teaching can be improved. As this is an international and not a national conference, it must be borne in mind that the milieu (i.e. the physical and social environment) in which educational programmes take place differs from country to country. A consequence of such differences is that, while it is possible for one country to learn from another, the detailed action plan that each forms to promote improvements in medical teaching can only be devised by that country. With this proviso, then, one way of proceeding might be to examine the successful innovations that countries have made to see to what extent they are transferable.

Reinventing the wheel is a popular pastime, but while human life is at stake it must surely be regarded as a wasteful one. Within countries the various educational sectors, for example, primary and secondary school, university, medical school, rarely communicate with each other so that they frequently duplicate each other's efforts to a quite remarkable degree. A gross example would be the current obsession in some countries with devising statistically sound formulae for scoring multiple-choice questionnaires. Those medical teachers engaged in this pursuit seem to be ignorant of the efforts of their colleagues in other medical schools years before and, for that matter, of the fact that educational testers such as Binet were investigating the same problem in the late nineteenth century. Thus, another profitable exercise might be for medical educators to survey what other educators have achieved in their own country and possibly what has been achieved at the international level as well.

A third area of investigation would be created if it were realized that it is possible to learn from mistakes. It has been wisely said that "He who does not learn the lessons of history has to repeat them." The history of innovations in medical teaching that have attempted to bring about improvements shows that many of them failed because insufficient attention was paid to the problem of getting them implemented or disseminated (see Table 1). A WHO consultation in 1978 (1) devoted some time to identifying the obstacles to better coordination between health services and health manpower development. It could be profitable to identify the obstacles impeding the implementation of ideas that have been demonstrated to be of value. Even the most casual glance at history reveals that almost all the innovatory effort has been devoted to the innovation itself, whereas implementation has been starved of funds, research and effort.

Bearing in mind the three areas of investigation listed so far, the probability is that a seminar that took as its major theme "Improving medical teaching by formulating plans of action to overcome obstacles to progress" might be the most rewarding.

The Seminar should, therefore, concentrate on identifying the obstacles to progress and formulate general plans to overcome them. Any discussion should include an investigation of what can be learnt from medical education in other countries and what other disciplines, especially that of education, can contribute.

## 2. Facilitating change

Good front-line soldiers are a necessary, but not sufficient, prerequisite for a successful army; the commander who has got the logistics of his campaign right is most likely to be the one on the winning side in any battle. Similarly, if an attempt is made to improve medical teaching merely by constructing a new film or learning experience, it should not come as a surprise if no improvement occurs. Getting the process or logistics of change right means taking appropriate action at two levels, and possibly three if it is an international affair. Successful innovation is dependent upon appropriate action being taken at several different levels of decision making. The lowest level in the hierarchy is that of the individual teacher, the next is at departmental level, the next at institutional level and the highest at national level.

Table 1. The process of dissemination

1. Components of dissemination

   (a) Translocation

   - movement of people and materials required to implement in teaching, e.g., Should teachers attend courses? Should there be teacher exchange?

   (b) Communication

   - passage of information about innovation from one person to another

   (c) Animation

   - the need to provide a stimulating and motivating environment for change

   (d) Re-education

   - considerable understanding and commitment are required for effective implementation, e.g. rapport between implementers and innovators

2. Targets for dissemination

   (a) Teachers

   (b) Support agencies

3. Phases of dissemination over time

   (a) Receptivity

   - preparing the environment for change

   (b) Adoption

   - getting decisions made to try out the innovation

   (c) Implementation

4. Modes of dissemination

   - For example, written materials, workshops, personal contact

5. Control of dissemination

   - Relationship to examination system

6. Maintenance of dissemination

   - The establishment of mechanisms to ensure survival after initial period of experimentation and provision for feedback from users to innovators

Action at the national level needs to be taken in at least two areas, namely at the level of state officials and at professional level. In some cases, if not all, it is probably also beneficial to attempt to modify public opinion. Such action can be loosely described as "political" action in that the aim is to create a climate in which educational reform can flourish. It is necessary to isolate the factors which prevent medical teaching being based upon community needs and which prevent health services from being planned along with health manpower developments (2). This involves identifying those officials and agencies responsible for decision making and planning an education programme for them. It means promoting the idea of continuous education throughout the undergraduate, postgraduate and continuing education levels. It also entails raising the general level of public knowledge. As Taylor (3) has pointed out "The skill comes in separating out those reforms that can and should be brought about by legislation and resource-distribution from those, however desirable, that can only follow changes in the climate of ideas."

Institutional level and departmental level can in some cases be treated as one, but it all depends on where the real power is to be found or how that power is distributed between the university senate, medical school, faculty and department. The distribution varies from country to country and between medical schools; in some instances, the health authorities, such as regional hospitals which are used by the university for teaching, form yet another power bloc. Furthermore, two medical schools operating under the same national legislation can differ in their distribution of power because of the personalities of the people who exercise that power. Unless everyone at all these levels is convinced that change is necessary or is at least prepared to be tolerant of change, improvements in medical teaching are doomed to failure or are likely to be only partially successful.

Finally, there is the level at which the teacher operates as the key decision taker. It is at this level that almost all the effort to improve medical teaching has been made. There has been almost an obsession with bringing about changes in the technology of teaching, e.g. courses whose primary aim is to instruct teachers how to make tape and slide programmes or to design multiple-choice questionnaires. Katz (2) has drawn attention to the fact that "the effectiveness of an educational programme depends on the appropriateness of the physical and social milieu of a given educational institution". Again, action has to be planned that will create a better climate for change. Miller (4) points out that although curriculum committees may feel they have done their duty when they have planned an objectives-based community programme, students will not be deceived about the importance of community orientation if the major departments remain hospital-based and the time given to community medicine is comparatively meagre. He continues, "... or to take another illustration of how good ideas can go wrong, we might reflect upon the use of audiovisual technology ... the enormous waste in manpower and money that has attended many efforts to introduce television-programmed instruction, computer-aided learning and other potentially powerful technical tools into medical education. With few notable exceptions, audiovisual technology seems more the creature of enthusiastic promoters than of sober educators trying to match technical marvels with learning needs." So-called problem-based curricula are often no more than a reorganization of the ways in which teachers teach rather than a fundamental reorientation of the ways in which learners learn. It is necessary to examine the role of teacher training courses, workshops and exchanges. It is also necessary to consider if and how university departments of education can be utilized. The ways in which educational departments in Poland, Sweden, Switzerland and the United Kingdom operate might profitably be studied, as might those in other countries not so well known to the author. This is yet another example of the necessity for planning or managing the logistics of improvements in medical teaching.

In some instances, international action can help to bring about improvements, especially if such action is closely allied to national policies. Perhaps now, it is time to evaluate what international agencies such as WHO have achieved and to consider their role in the future. What is the role of conferences and workshops? Should there be a continuing series of conferences rather than isolated meetings? What are the advantages and disadvantages of teacher exchange? Is there a place for an innovation experiment that is common to many countries? Would comparative studies of teaching improvements be profitable?

If the Seminar is to concentrate on identifying obstacles to improvements in medical teaching, then one way of proceeding might be to consider the obstacles that exist or can exist at the different levels at which decisions about proposed improvements must be made. The issue that is of major concern is not innovation but implementation.

3. Implementation and innovation

Medical education is not alone in turning its attention to the problems associated with implementing innovation. Becher (5), writing about higher education in 1971, said "The early 1960s, then, taught the new agencies concerned with educational change a good deal more about the

ways to develop innovations than about the ways in which, once developed, they might most effectively be implemented. The problem of innovation was in fact hardly recognized as a problem - it was simply assumed that successful adoption would follow logically and inevitably from successful initial development and trial and subsequent revision and mass production." UNESCO (6) has also, in effect, come to the same point of view as Becher and has started to look at implementation as an issue in its own right.

Ellis (7) has produced a list of principles which are now known to be necessary for good teaching. Among those he lists are course flexibility, options and electives; individual knowledge of student capability and attitudes; suitable learning and teaching space; the use of curiosity, critical thinking and self-learning and, therefore, problem-solving in a clinical setting; and appropriate evaluation instruments. He says "We know how to make better teachers and that we must make good teachers out of good doctors. We know that bad doctors who are good teachers can do incalculable harm. We know that those teachers who teach medicine must continue to practise medicine."

When the world medical scene is surveyed, it is relatively easy to find teachers who have successfully found ways of putting the principles described by Ellis into practice. An analysis of why the innovations were successful would be most helpful in providing lessons from which other teachers could learn. Equally, an analysis of why other innovations failed could also be helpful. The various associations of medical education, and especially the Association for the Study of Medical Education in Europe, have done extremely valuable work in disseminating news of innovations among medical teachers. What is needed now is to consider how to spread this knowledge to the other levels at which decisions are made.

4. Summary and proposal for Seminar

In the educational world as a whole, there seems to be common agreement that until the problems associated with the implementation of innovation have been solved, many future innovations are doomed to failure. Thus, the most rewarding way of investigating how medical teaching can be improved might be to postpone for a time the development of yet more new approaches to teaching, and to concentrate on ways of ensuring that existing knowledge is disseminated more widely. In short, the Seminar could concentrate on implementation, not innovation, as a way of improving medical teaching (Table 2).

Table 2. Educational strategies

The educational strategies adopted by UNESCO over the last ten years have gone through three stages of development because of developments in ideas about educational technology.

| Period | Conception of educational technology | Who | Objectives | Content | Approach |
|---|---|---|---|---|---|
| About 1967 | Audiovisual aids | Technicians | Technical and practical skills | Production Maintenance | By-media approach |
| Up to 1975 | Methods, materials and techniques | Specialists | Optimization of the teaching/ learning process through media | Definition of objectives Elaboration of programmes | Curriculum-oriented approach |
| Today | Systems analysis | Groups | New attitudes New approach | Critical evaluation Group awareness | Study of problems and their solutions Optimization |
| Tomorrow | ? | ? | ? | ? | ? |

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Annex III

# THE MEDICAL TEACHER AND EDUCATIONAL INNOVATIONS

by
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## 1. Introduction

The aim of this presentation is to analyse why only a minority of medical teachers is continuously trying to optimize its teaching by orienting it both towards societal health needs and towards modern educational concepts, and why a majority of teachers sticks to traditional ideas of the teacher's roles and to the traditional aims and methods of medical education.

I shall try to answer this question mainly against the background of my work experience in several relatively traditional medical faculties in the Federal Republic of Germany. This analysis is necessarily incomplete and oversimplified. It is intended to serve as an incentive and framework for further discussion during the meeting and must be modified according to the specific conditions of individual countries. It is important to stress that this analysis may apply less to eastern European and developing countries, as their conditions, problems and possible solutions may differ very much from those in western European countries.

## 2. The medical teacher and educational innovations: the present situation

The motivation and behaviour of medical teachers with respect to educational innovations is influenced by a complex set of conditions. Some of them are listed in Fig. 1. They can be organized into two groups: one group includes those variables which actually impede innovative behaviour (constraints) and one group of variables which promote innovative behaviour (incentives).

### 2.1 Constraints

#### 2.1.1 Recruitment

The teaching staff of a medical school is composed almost exclusively of representatives of the natural and clinical sciences. Teachers have been working for a longer period of time at the upper level of research within the discipline and/or in last-line care settings. By far the most important recruitment criterion for appointment is the candidate's scientific qualification.

It is thus perfectly logical that topics relating, for example, to preventive medicine, primary care and psychosocial aspects of medicine do not receive enough attention within the curriculum. The same applies to the staff member's interest in innovative educational activities, as this is usually not taken into consideration at the time of appointment.

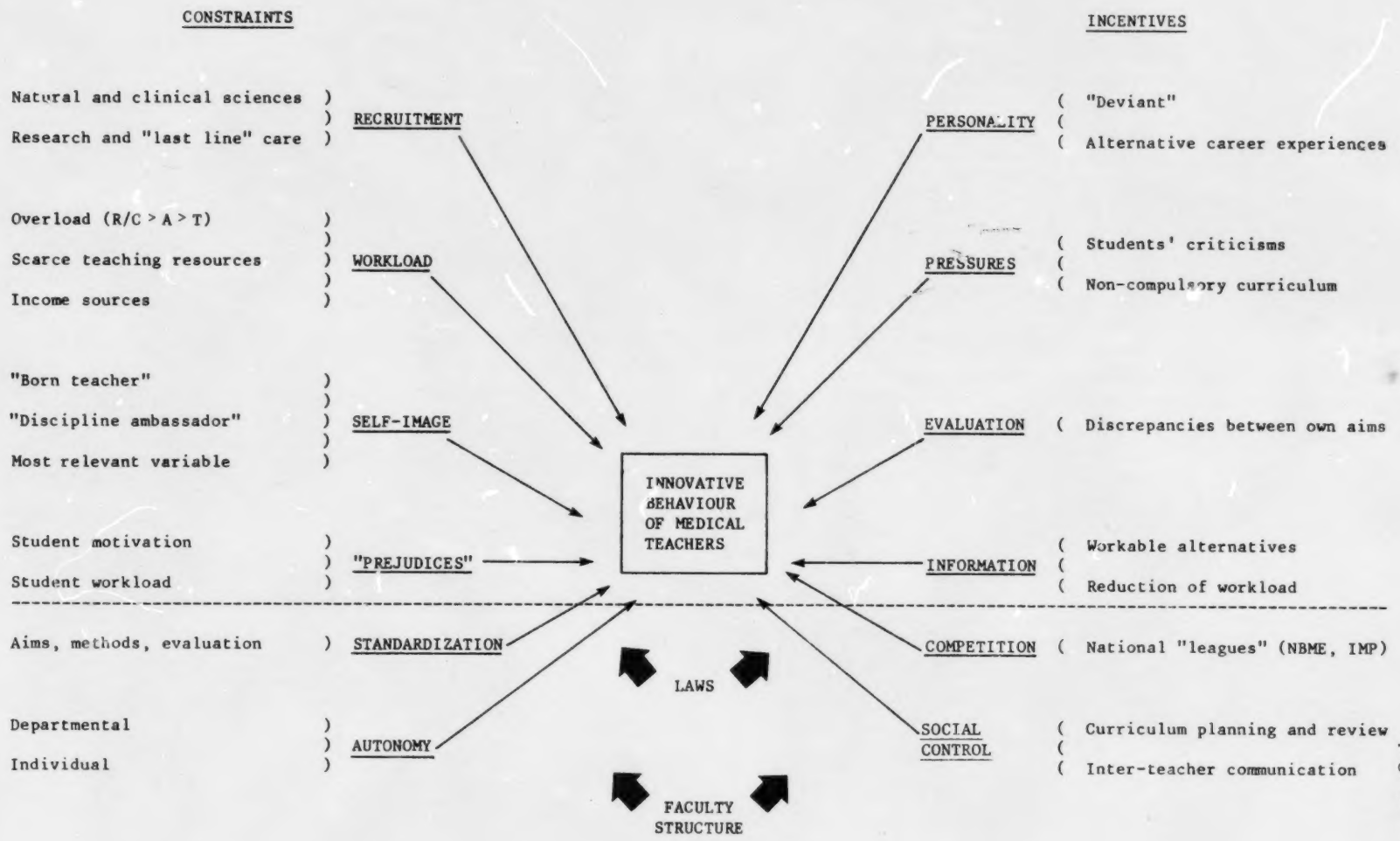
#### 2.1.2 Workload

The staff member has to distribute his time over different work areas: research, clinical work, teaching, administration. Usually encumbered by work overload, staff members tend to minimize the time allocated to teaching, which is less well rewarded within the scientific community. In some cases, income factors may work in the same direction. This situation is aggravated in those countries where the increase in the number of medical students during the last 10-15 years has not been followed by a similar increase in teaching personnel and material resources.

#### 2.1.3 Self-image

Due to the mainly science-based socialization process of teachers, the qualification for teaching is believed to be acquired while gaining competence in the research aspects of the discipline. The quasi-identity of both processes, in the view of most staff members, makes every top researcher or clinician a "born" teacher. Once appointed, he will consider his discipline to be the most important in the curriculum and will try to raise its relative prestige within the local curriculum, mainly according to the level of hours allocated to that discipline. This "discipline ambassadorship" goes together with the idea that one's own teaching - often identical with lecturing - is the most relevant variable for the success of students' learning processes.

Fig. 1. The medical teacher and educational innovations: the present situation



2.1.4 "Prejudices"

In spite of valid empirical evidence, teachers often explain less satisfactory cognitive and behavioural results as being due to students' personality characteristics, e.g. lack of motivation or effort. Usually, the students in previous years are considered to be better than the present students, and it is not the curriculum that needs change but the selection procedure for admission.

2.2 Incentives

2.2.1 Personality

It can be noticed that some staff members show a quite different (deviant) attitude and behaviour towards learning and teaching processes in medical school. Except for the fact that they have had differing career experiences, little is known about the reasons for their different behaviour. More investigation of their motives is needed. The results of such studies could be very useful for the planning of educational innovations in general and teacher training activities in particular.

2.2.2 Pressures

An increased readiness among staff members to accept curriculum change is often the result of thoughtful, more sustained criticisms and proposals on the part of the students. While these proposals are not necessarily accepted in toto by the faculty, they may trigger off a development and experimentation process at the individual, departmental or school level. A similar pressure exists with regard to the noncompulsory parts of the curriculum, where certain degrees of non-participation in learning situations on the part of the students may encourage staff members to consider alternative approaches.

2.2.3 Evaluation

Positive effects can sometimes be obtained by external evaluation or by merely describing and/or analysing the reality and outcomes of actual teaching and learning processes. The development of a sound explanatory model for existing discrepancies between the teacher's aims and the actual result of the teaching-learning process can mark the start of a step-by-step process of innovations.

2.2.4 Information

A similar effect can sometimes be obtained by demonstrating workable alternatives drawn from other faculties with comparable conditions. Special attention should be paid to the question whether the proposed alternative will decrease the teaching workload or at least have no effect in this respect.

2.3 Faculty structure and laws on medical education: constraints or incentives?

The organizational structure - both formal and informal - of a medical school and the national laws on medical education (or comparable regulations) cannot be classified under the heading of "constraints" or "incentives". However, the question of which types of medical school organization and decision-making patterns and which elements of laws on medical education do promote or impede innovations deserves more transnational exploration. The following examples may illustrate these influences.

One main characteristic of laws on medical education in western European countries since the Second World War has been the increase of state influence on medical education, leading to a progressive standardization of curricula at the national level. In those cases where this process has led to the detailed fixing of curriculum content and examination procedures, less margin has been left for innovations on the part of the individual teacher. On the other hand, where examinations that are comparable nationwide (i.e. with multiple-choice questions) have been introduced (e.g. by the Institute for Medical Examination Questions in the Federal Republic of Germany and the National Board of Medical Examiners in the United States), teacher behaviour may be influenced by national, departmental and/or school competition to obtain higher ranking of the respective student cohorts in what may be called the national examinations league-table.

The same applies to school organization and decision-making processes. Whereas it is generally agreed nowadays that a certain degree of social control over the individual's teaching by curriculum planning and review bodies is necessary in order to counterbalance individual and/or departmental autonomy, it is unclear how such bodies can acquire an innovative spirit or how to spread this attitude among staff members.

## 3. Proposals for discussion and action

From the analysis of constraints and incentives relating to a change in medical teacher behaviour described above, at least the following theses for further discussion and proposals for action can be drawn (see Fig. 2).

### 3.1 Recruitment

There is a need to achieve a balanced disciplinary composition of the medical school's teaching staff (natural, clinical and sociobehavioural sciences). The same applies to the institutional background of the entire staff: they should include representatives from all levels of health care, including tertiary care and primary care. Appointment criteria should include the previous participation of the candidate in innovative educational activities.

### 3.2 Workload

The special allocation of time by the individual teacher to educational experiments and evaluation should be suitably rewarded (e.g. by reducing his other duties, making him a supplementary payment, publicizing his findings).

### 3.3 Resources

The volume and distribution of educational resources, both of manpower and material, should be such as to allow and promote educational innovations. Educational creativity cannot be achieved if resources are scarce. On the other hand, more attention needs to be given to the question of which specific resources are locally needed, and will be accepted, for educational innovations.

### 3.4 Information

The dissemination of information on current experiments and developments in medical education down to the level of the individual teacher is largely unsatisfactory. Journals on medical education usually reach a restricted number of experts only. Scientific journals should thus be encouraged to include more articles on educational matters, and teacher training activities should concentrate on the distribution of such information. In this connexion, more attention should be paid to the question of transferability.

### 3.5 Research and evaluation

With regard to the question of innovation in medical education, serious gaps in research findings exist in the following areas:

- strategies and problems of student learning;
- qualification deficits and needs of physicians and medical students;
- impact of medical school organization and decision-making processes;
- impact of laws and school organization on educational innovations.

### 3.6 Social control

If the medical curriculum's raison d'être is the teaching of the students, then their influence, both formal and informal, on the design of the curriculum is a necessary element in the promotion of innovations. On the other hand, innovative stimuli could be expected from the participation of other health professionals (e.g. nurses, health insurance officers) in the review of medical curricula. Experience in this direction, however, seems to be scarce.

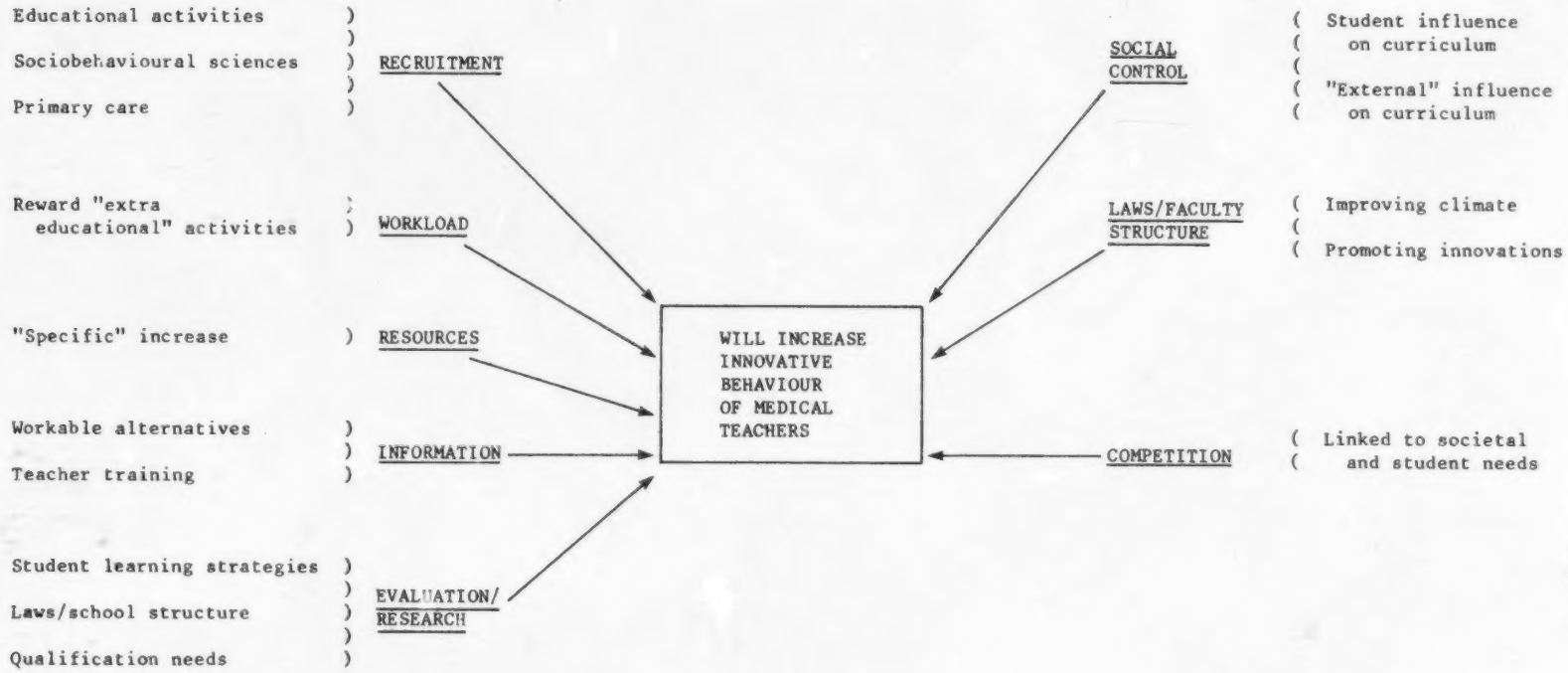
### 3.7 Laws and medical school organization

Because of the important influence of laws and medical school organization on the conditions for innovative educational work, more attention should be paid to ways of improving the school's system of intercommunication and its innovative spirit.

### 3.8 Competition

If competition is an incentive, ways should be developed to make the competitive behaviour dependent on societal and student needs.

Fig. 2. The medical teacher and educational innovations: proposals for action



## 4. Conclusions

In the past, much attention has been paid to ways of influencing and convincing the individual teacher. This paper has indicated the structural conditions which have to be influenced in order to allow and promote changes in teacher behaviour. A major change - generally considered to be imperative - will call for equally far-reaching changes in the existing situation.

Annex IV

# FACILITATING IMPROVEMENTS AT DEPARTMENTAL/MEDICAL SCHOOL/UNIVERSITY LEVEL

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## 1. Introduction

The level I shall be concerned with, that of the medical school, is a particularly intriguing one. Because in many countries medical schools and departments within medical schools enjoy a fair degree of autonomy, they may be considered to be the single most important factor related to the improvement of medical education. On the other hand, there appears to be little doubt that the implementation of innovations in medical schools and similar institutions can be successful only to the extent that there is a sufficient correspondence of values, decisions and actions at three different levels: the national level, the institutional level and the level of the individual teacher and frequently at the level of the individual student. Furthermore, successful innovations seem to require some knowledge and understanding of the forces, counterforces and mechanisms which determine both stability and change in social organizations such as medical schools and universities. Quite often, a lack of such knowledge and understanding may have resulted in the limited success or even the failure of innovations.

## 2. Example of an innovation

In considering such complicated issues as social change, it is helpful to draw upon one's own experience. I shall refer, therefore, to the fate of a major innovation within our medical school. In 1971, our faculty decided to introduce a new type of medical curriculum which resulted in a substantial change in the undergraduate programme, in particular in the 4-year clinical course. The major changes were extensive small group teaching in clinical methods in the first clinical year; clerkships of 4 to 8 weeks in all clinical disciplines throughout the second and third clinical year in university, district and municipal hospitals, with a block of introductory lectures at the beginning of each year; a 10-month period of electives during the final year of studies, involving about 40 programmes in primary care practices; objective examinations which partly replaced orals.

The reform received considerable backing and financial support from the cantonal government, the student body and, at least in the beginning, from most faculty members also. Yet despite the fact that the results appear to be encouraging,[a] most senior and many junior faculty members seem to be convinced that this innovation was more or less a failure and that the traditional curriculum which existed until 1970 should be reinstalled, at least to some extent. The new system is believed to be too expensive and not effective enough because students are assumed to acquire less medical knowledge than 10 years ago or in the other faculties (data which tend to support the opposite view are hardly taken into account at all). Not only faculty members but also students have lost interest. Increasingly, students seem to feel that they have less time to study textbooks than their colleagues in the other universities, with whom they have to compete for a declining number of postgraduate training positions.

## 3. Why innovations can fail

This example can serve to illustrate why the implementation of an innovation may be only partially successful or even a failure. The plan for the new curriculum was sound and could be justified both in terms of the educational as well as the health care philosophy of the 1960s (of course, it would be challenged today, among other reasons, because it is not adequately orientated towards primary health care). One serious problem was, however, that the faculty members who had adopted this innovation had done so for a number of different reasons which were never made fully explicit. To some, the new curriculum may have meant less involvement in lecturing and oral examinations and more time for patient care, bedside teaching and research; many may have felt that some change was necessary. Today, it can be concluded that the new programme was adopted without sufficient consensus about the institutional goals of the medical faculty and the aims of the undergraduate programme.

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[a] The existing evidence is based upon comparisons of the results of objective examinations in several clinical subjects in all Swiss faculties, as well as questionnaire data from several hundred instructors and more than 1000 medical students.

The new programme has been successfully implemented, at least from an administrative point of view, in an organization which, although several changes took place, has retained its traditional internal structure. A steering committee headed by the dean (who is elected for one or two short terms) and faculty committees (for each stage of the clinical programme) are responsible for curricular planning and administration with the help of three senior medical students who interrupt their studies for one year in order to work full-time in educational planning and evaluation. However, these committees have relatively little power. The departments (and this means, in general, department heads) are largely autonomous, especially with regard to services, research and postgraduate training. Furthermore, no system was established for the evaluation of progress and for giving feedback to committees, departments and individual faculty members. Thus, the second conclusion which can be drawn is that the organizational arrangements and changes made within the medical school were not sufficient.

Most staff members in clinical departments (from junior to senior level) became involved in teaching, either as tutors or advisers, in addition to their usual roles as doctors. However, they were not taught how to plan instruction, how to teach and guide students and how to evaluate instruction, and no formal roles such as adviser, tutor or instructor were created. The third conclusion is, then, that the new programme lacks an adequate system of positions and roles related to several new functions or tasks as well as a programme for staff development.

The new programme would have called for certain changes in values related to the provision of health services and the priorities in medical research and teaching. However, there have been hardly any such changes. As in other medical schools, selection for and promotion to academic positions is based scarcely at all upon involvement and skills in teaching, but largely upon accomplishments in biomedical research. Similarly, there seems to be little change in the direction of a more pronounced orientation towards social needs and societal values. Medicine is basically regarded as a natural science which hardly needs an input from the social and behavioural sciences. Thus, the fourth conclusion which can be drawn is that the reform has been supported very little by values and attitudes which correspond with accepted health care needs and shared educational aims.

Despite these obvious obstacles, the new programme has developed its own momentum. It can be considered neither a complete failure nor a complete success.

4. Some principles for the implementation of innovations

These interpretations suggest some obvious principles which must be followed if innovations in medical education are to be implemented successfully.

First, the aims of educational reforms or other innovations must be made explicit and shared widely, in particular by those who are responsible for the major service, research and teaching functions of the institution.

Second, an adequate organizational structure must be established for the dissemination of information and for decision making as well as for the implementation and evaluation of innovations.

Third, new positions and roles must be established or traditional ones changed, especially in the field of educational and health services research, in decision making and evaluation, and in staff development or teacher training.

Fourth, an essential prerequisite for the successful implementation of innovations in medical schools and elsewhere is that the values and attitudes associated with the aims and the process of such changes are shared by the majority of the departments and people involved.

There are certainly no recipes for putting these principles into practice, no easily discernible strategies or rules. These issues await careful analysis and scientific study. However, the failure of many innovations has taught us at least one lesson: improving medical education, health services or any other function of complex social systems is not simply a matter of social engineering which merely requires organizational and technological innovations. It is a matter of an adequate policy and planned social change which calls for sufficient insight into the forces and processes that determine stability and change in social organizations.

Annex V

# INCORPORATION OF THE ACHIEVEMENTS OF PEDAGOGICAL SCIENCE IN TEACHING PRACTICE (UNIFIED METHODOLOGICAL SYSTEM)

by
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A unified methodological system (UMS) has been devised at the First Moscow Medical Institute on the basis of incorporating present-day achievements of pedagogical science in teaching practice. In this connexion, we proceed from the fact that the organization of the teaching process on the basis of a normative model (UMS) presupposes a scientific search for the teaching plan, which is the best of those possible in given conditions and leads to the objective which has been set.

Our objective is to speed up access to knowledge. At present, the task is not only to teach all the students but to teach each individual. It is necessary to find ways of presenting knowledge more economically, to strive to form in the pupils a general method which they should themselves learn to transfer to new, personal phenomena.

Our system is directed towards ensuring the chief function of the modern teacher - guidance of the learning activity and the process of acquiring knowledge and skills. In our efforts to achieve efficiency and quality in training, the main attention is concentrated not on improving control, nor on revealing shortcomings, but on creating conditions which preclude the appearance of these shortcomings.

UMS is a system of norms for teaching work which are common to all departments. It forms a unified teaching "standard", on the basis of which plans are worked out for teaching activities in the various courses of departments, taking account of their specific nature. In other words, the normative model determines the types of teaching activity which should be implemented, the sequence in which they should be conducted and the requirements that have to be met in order to select with confidence the optimal variant for constructing the teaching process.

We base ourselves on the premise that the principal criterion of the efficiency and quality of the teaching process is the degree to which all students at each teaching level are prepared to undertake further study and practical work, with the least expenditure of effort and time on the part of both students and teachers. It follows from this that the fundamental reserves of efficiency and quality in the training of specialists lie in restructuring the organization of teaching in departments towards achieving the end results. Therefore, the first principle is orientation of the training of specialists towards the end results at all stages in the planning and implementation of the teaching process.

The realization of this principle, in turn, presupposes the use of a programme-targeted method in planning and implementing the teaching process. This method calls for strict correspondence between all the means used by the teacher in organizing and conducting studies and the end objectives of the teaching and educative process at all of its stages.

Basing itself on the traditional method of teaching and using everything of value in classical medical education, the programme-targeted method makes it possible to correlate strictly and precisely the forms and methods of teaching and the final objectives. Therein lie its special characteristics and its novelty. The programme-targeted method enables one to adopt a qualitative approach to improving the organization of the teaching process. Here, the objective is the chief orientator and criterion in the selection of the content, methods, forms and means of organizing the teaching process. At the same time, the objective is a most important system-forming element in the organization of teaching, cementing all the other elements into an integral system. In this connexion, it should be stressed that each element in the construction of the teaching process must be included in a single methodological system. If this is not done, there will be no resulting qualitative improvement in the process. Optimization of various elements in isolation may fail to yield an effective functioning of the entire system and may even lead to its destruction.

Thus, the second general methodological principle is the programme-targeted method of constructing the teaching and educative process in the departments.

The task of raising the efficiency and quality of teaching requires the teacher to abandon the intuitive experimental approach in favour of the scientifically-based selection of optimal variants for constructing the teaching process.

The scientific approach to the teaching process ensures control of the quality of teaching, not only the control and detection of defects, i.e. such an approach makes it possible to create conditions for teaching which reduce defects to the minimum or prevent them entirely.

Defects in the teaching process arise out of the violation, by individual departments, of the teaching technique, of the essentially unique methodological chain linking all the departments which are involved in the training of specialists. As a result, the requisite indices of students' knowledge and skills are not ensured; these indices are necessary for successful work in other departments and for productive professional-practical work. On the other hand, teaching errors may not occur, and each teacher and the department team as a whole will follow the teaching norms worked out for the organization of the teaching process.

Thus, the third general methodological principle is the elaboration, on the basis of scientifically justified norms of teaching and professional activity of:

(a) unified teaching "standards" common to institutes and departments - normative requirements for lectures, practical work, teaching aids, etc. - in respect of all elements of the organization of teaching, as the bases for controlling the quality of the teaching process;

(b) a system of indices of the effectiveness and quality of the teaching activity - basic pedagogical levers and stimuli.

An important distinctive feature of such an approach to the construction of the teaching process is the creation of conditions for organizing the guided and self-guided independent work of students - in other words, the realization of the prime function of the contemporary teacher: guidance of the individual student's work. The topicality and urgency of this problem is expressed by the motto for the present-day organization of any type of production, and especially for such a refined type of "production" as teaching and education, namely "Guide, don't just correct". This approach is a very important condition for the effective functioning of the teaching system, the realization of which is possible only on a psychological-pedagogical basis which envisages the creation for this purpose of special teaching means for the organization of guided and self-guided work by students, both in preparation for classes and in the classes themselves. To achieve this, it is necessary to devise and apply a set of targeted learning tasks supported by methods of self-guidance and self-correction.

The methodology based on the use of this element makes it possible to link knowledge and activities from the very start of the training, since in such circumstances, knowledge is acquired as it is applied by performing the learning tasks. In this case, knowledge is acquired not by learning by heart the content of teaching material as such, but as a result of conscious actions requiring the application of that material. In this way, knowledge has an orientating role in the rational execution of these actions and is also the result of cognitive activity and a means of acquiring new knowledge. Hence, the content of teaching material is seen as a pedagogical means of solving cognitive tasks, this being the main function of teaching material. The successful implementation of teaching tasks is ensured by special pedagogical means: orientational bases for activities, models, etc. These enable the student to exercise self-guidance and self-correction through his own activities and enable the teacher to establish, on an operational basis, the reasons for difficulties experienced by the student and to adjust the teaching process. Thus, the orientational basis of activities is the teaching apparatus of student self-guidance. Using this, the teacher will, in the conditions of group instruction, be able virtually to guide effectively all students in the group and to teach them all.

This leads to the fourth general methodological principle: to ensure, in all stages of planning and implementing the teaching process, the execution of the main function of the contemporary college teacher; organization and structuring of guided and self-guided work by students.

Thus, the scientifically-based approach to improving the teaching-educative process on the basis of UMS consists of the following:

(a) theoretical calculation of optimal variants of study plans as applied to specific conditions;

(b) theoretical-experimental evaluation of the effectiveness and quality of study plans and their necessary correction;

(c) the use, in the actual teaching process, of study plans which have been subject to theoretical-experimental guidance and have received the necessary correction in relation to local conditions (initial level of the students, methodological writing and teacher possibilities, working conditions, etc.).

Guidance of the teaching process presupposes the fulfilment of a number of basic requirements regarding the general theory of guidance:

- the teaching aims must be precisely defined and unambiguously understood by all participants in the teaching process;
- the requisite initial level of knowledge of students must be ensured;
- there must be appropriate feedback and correction of students' work.

Normative types of teaching activity in departments include the following basic elements.

(a) Description of the objectives of teaching by means of types of professional activity which the students must have mastered after completing their study of the topic or course as a whole. The objectives of teaching may be achieved in the form of targeted tasks. In this connexion, the term "task" implies a problem situation which requires for its solution certain activities based on the knowledge acquired.

(b) Preparation of tasks aimed at ensuring, determining and adjusting the initial level of knowledge of students. In order to achieve the objective, it is necessary to ensure the initial level of knowledge of the students. The teacher compiles for the students special self-correction and self-guidance tasks which ensure the initial level of knowledge.

(c) Formation of a logical didactic structure of the course or topic. The teaching material is selected on the basis of a scientific and didactic analysis of the content, using matrix and other analytical methods. In this way, the content system of the course is constructed, basic concepts and rules are singled out and teaching material of motivational and deontological significance is identified.

(d) Determination of the optimal sequence of study of course themes and construction of lessons for the course. Each lesson must form a separate link in the system of course studies. For this reason, it is very important to determine the place assigned to each lesson in the system of the subject taught and to identify its didactic aims in accordance with the course objectives.

(e) The preparation of tasks for teaching targeted cognitive and professional types of activity. The basic method for guiding students' active work is the task of performing a given activity. To ensure that the aim of the teaching has been achieved, it is necessary to conduct the content of each topic by task-solving, and thereby to link knowledge and skills. Consequently, the solving of study tasks is the main unit of learning activity of students. The tasks must correspond to the objective of the studies and include everything necessary from the content of the topic studied.

(f) Preparation of an orientational basis for students' activities in solving tasks or the transformation of teaching material into a programme of action, a system of indices and orientators ensuring guidance and self-guidance of students' work. These methods should provide support for the students in solving tasks.

(g) Preparation of visual teaching aids and audiovisual means, selection of optimal organizational forms for conducting class work and the corresponding technical means. The lesson must be structured in such a way that the teacher can, if necessary, guide and correct the work of each student, i.e. provide feedback in teaching. In this connexion, the use of modern technical methods of teaching and guidance are envisaged.

(h) Compilation of tests to determine and adjust the level of knowledge; preparation and use of examination tests.

Annex VI

# SOME WORLDWIDE EXAMPLES OF SUCCESSFUL STRATEGIES FOR IMPLEMENTING INNOVATIONS

by
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Speaking about successful strategies for implementing innovations in the medical curriculum leads us to ask what innovation really is and which features characterize it. For instance, the head of a biochemistry department may decide to replace the lecture traditionally given on the Krebs cycle by a film or a videotape on the same subject, and this is an innovation. In the same way, the evaluation committee of the faculty may recommend the introduction of multiple-choice questions in the second-year examination, and this can be regarded as an innovation, too. Therefore, I think that nowhere in the world are there any medical school or faculty teachers who have not, for such a course or such a programme, implemented something which can be legitimately regarded as an educational innovation.

However, experts in medical education today are more demanding about the concept of innovation. According to them, there are two kinds of educational innovation: minor ones (those referred to above) and major ones. These result in a profound transformation of the aims, content and design of a curriculum.

Actually, there is a certain measure of agreement among the experts about what distinguishes a traditional medical school from an innovative one. An innovative medical school is one which has implemented a completely new curriculum based on two objectives:

(a) to be relevant, i.e. to produce professionals able to give a positive answer to the health problems of the population;

(b) to be student-oriented, i.e. to develop a curriculum which focuses more on learning than on teaching.

The list of medical schools or faculties throughout the world which have developed such curricula is growing quite long, and it is my pleasure to observe that it is growing every year. Let us quote some outstanding ones which appear frequently in literature devoted to innovation in medical and health education: McMaster and Laval in Canada, Maastricht in the Netherlands, Tromsö in Norway, Hacettepe in Turkey, Bobigny in France, Beersheba in Israel, Illinois in the USA. All these have in common the search for a new type of doctor more able to solve community health problems on the spot. All are more learning-oriented than teaching-oriented.

The question now is which strategies have been used by these schools to secure innovation at institutional level? Although the applications are not absolutely comparable, some features appear to be common.

(a) All have devoted a fantastic amount of time, effort and energy to a preliminary consideration of what the needs of the population at the local, regional and national levels were and, consequently, what the tasks of future doctors should be; this work has been conducted jointly by teachers, health professionals, health consumers and government representatives.

(b) All have spent considerable time in designing the curriculum.

(c) All have tried to involve the largest possible number of staff in the discussion and planning of the curriculum; for instance, at Hacettepe University in Turkey, according to Dr Taner's account, "All members of the faculty cooperated in research for a valuable educational system. After many long meetings and endless discussions, the new system of medical education was accepted".

(d) All curricula have some marked features of horizontal integration and vertical integration.

(e) Most of them favour a system of course organizers, coordinators or directors rather than heads of department to supervise the curriculum.

(f) All have given considerable time and thought to evaluation of the student's performance and of the programme, and to continuous assessment of the relevance of the curriculum in the light of the population's needs.

(g) Most have involved students in curricular planning and in evaluation.

(h) Finally, all have created a department or a unit dealing with research and evaluation in medical education but also, and this is the point, playing a major role in the organization of educational courses for medical teachers.

These courses, workshops and seminars have been of paramount importance, for, as recently pointed out, new ideas often fail because, although they are educationally sound, they are too far in advance of the thinking of the rest of the medical school as teachers have not been sufficiently educated.

Successful strategies used by medical schools may be summarized as follows: concern for relevance, communication, cooperation, evaluation and education of the teachers.

I believe we have to develop in our medical schools, even if they are rigidly and traditionally organized, both a spirit and a framework of cooperation, communication and evaluation.

One of the ways of achieving this goal is to organize more interdepartmental medical education workshops, not only in order to sensitize a critical mass of teachers to the concepts of medical education, but mainly to train them to think together about what the future health profession must perform and, finally, to train them to communicate, cooperate among themselves and evaluate one another's performance.

Annex VII

# EVALUATION OF TEACHING IN HIGHER EDUCATION

by
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In order to be assessed as a teacher for higher education, the applicant has to produce evidence covering one item selected from the following list of criteria.

(1) Evaluation of his or her own teaching, covering a series of at least five teaching sessions each of one hour's duration; the report should include the achievement of the participating students, assessed objectively, and an evaluation of the teaching as judged by a group of three members of the faculty.

(2) A research paper based on the candidate's own teaching.

(3) A paper on teaching methodology or educational research.

(4) Media produced by the candidate for learning or evaluation of learning, together with an evaluation of the material; this could be one or more of the following items:

(a) textbook;

(b) audiovisual programme (film or videoprogramme);

(c) tape-slide lecture;

(d) programmed instruction;

(e) curriculum for a course in higher education;

(f) syllabus for a course in higher education;

(g) list of objectives for a course in higher education;

(h) material for objective evaluation of learning with empirical results, e.g.:

- questionnaire;
- multiple-choice questions;
- case simulations;
- practical examination.

(5) Report on the candidate's activities in national or local committees on higher education.

(6) Certificate of participation in a teacher training course of at least 45 hours' duration.

Annex VIII

# STAFF DEVELOPMENT PROGRAMME FOR TEACHERS OF MEDICINE AND HEALTH CARE PROFESSIONALS: EXPERIENCES IN THE CENTRE FOR MEDICAL EDUCATION, UNIVERSITY OF DUNDEE

by
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Since 1975, the Centre for Medical Education, University of Dundee, has gained considerable experience in the organization of staff development programmes for medical and health care personnel teachers from the United Kingdom and overseas.

This programme has consisted of:

(1) courses and workshops:

(a) in Dundee, one to eight weeks' duration;

(b) on-site overseas, usually one to two weeks' duration;

(2) ongoing support through:

(a) a medical education newsletter with built-in follow-up service; and

(b) advice and assistance to staff as requested.

This paper deals with the organization of courses and workshops. It summarizes the characteristics of the Dundee courses which have evolved in response to the needs of participants from 23 countries who have attended them. It would be of interest to compare this experience in Dundee with the experiences of Seminar participants who have organized courses elsewhere.

Twenty-five courses have been organized by the Centre for Medical Education, covering topics such as teaching methods, assessment and curriculum planning and development.

Important characteristics of the Dundee courses and workshops include the following.

(1) The course staff are actively engaged in teaching and assessing students and in development and planning in education.

(2) Participants meet physicians and other teachers and innovators with whom they can identify.

(3) Examples of innovation and teaching practice are examined and course participants see teaching methods adopted in practice with students at the Centre and elsewhere. Teaching materials or assessment exercises prepared by participants during the course are tested with students.

(4) The methods used in the course and workshop are designed to illustrate possible presentation techniques, including large-group teaching, small-group techniques and independent learning. A range of audiovisual aids is used and independent learning material is available. A case study approach is incorporated.

(5) The participants are presented with a range of educational approaches to the problems facing them, each with a different underlying philosophy. The advantages and disadvantages of each approach are considered, and the participants are encouraged to select the approach most relevant to their own needs.

(6) Illustrations of educational practice are shown to participants as examples to be studied but not copied as they stand. Participants are encouraged to think about those aspects of the examples that might be relevant to their own situation and to adapt and modify the techniques to suit their own requirements.

(7) Participants are encouraged to discuss and evaluate the theoretical basis underlying the examples of educational practice seen by them.

(8) Part of the programme of the workshops is arranged as fixed sessions and part as flexi-time, in which the participants can opt to undertake activities most relevant to their needs.

(9) The courses and workshops are task-orientated so that participants produce during the workshop a visible product which they can take home and implement in their own situation. This may be material to improve lectures, independent learning programmes, assessment instruments or a design for a course or part of a course.

(10) Participants are divided into small groups, with a maximum size of eight, and each group has a tutor with whom its members can identify and who remains with them during the course.

(11) Participants are expected to take part actively in the course and to work, not only during the day, but in the evenings and at weekends on course-related activities.

(12) The course is organized so that the pace is varied during different activities in the course.

(13) A feature of the course is that participants are made to feel at home, so that they can quickly settle down to the work of the course. Contact with staff of the Centre for Medical Education and various social activities are used to reinforce this supportive ambiance.

(14) A detailed printed programme is produced for the course. This helps to guide participants through the various activities.

Assumptions behind the courses and workshops

The following assumptions underly the approach to the courses:

(a) someone who does a little is better than someone who talks a lot;

(b) change is a process of organic growth;

(c) initiation of change depends on entrepreneurial skill;

(d) the citadels of established practice will not fall to the polite knock of a good idea; nor will they yield to missionary zeal;

(e) cognitive processes are concerned with what one can do; attitudinal processes are concerned with what one chooses to do; staff development programmes must be valued in terms of what participants choose to do.

What it is hoped the courses can achieve

(1) Some participants will initiate change within their own institution.

(2) Others will let these changes take place.

(3) Some will do the same things better; others will do different things.

Annex IX

LIST OF BACKGROUND DOCUMENTS

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Annex X

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